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family, subfamily, tribal and divisional names which Mr. Baker's novel idea implies.

H. M. PARSHLEY

SMITH COLLEGE

THE BEGINNINGS OF AMERICAN GEOLOGY

TO THE EDITOR OF SCIENCE: Referring to Dr. T. C. Mendenhall's article on page 661 of the current volume of SCIENCE, I desire to say that I have no wish to enter into any controversy in regard to the facts of Newberry's connection with the Geological Survey of Ohio and I sincerely hope for the benefit of the history of American geology that Dr. Mendenhall is correct. Moreover, I yield to none in my high regard for both Newberry and Orton. My reference was entirely to a period prior to Orton's accession to the directorship of the survey and to the feelings which Newberry publicly expressed at the time I was a student under him at the Columbia School of Mines.

In confirmation of which I can only add that Charles A. White, than whom none knew Newberry better, writes in his memoir that was published by the National Academy of Sciences as follows: 'In 1874 the work of the survey was suspended by failure of the legislature to provide the necessary funds and much dissatisfaction and even bitterness of feeling was engendered among those who had taken part or had been interested in it. Dr. Newberry thought and with apparently good reason that injustice had been done him in his relation to the survey.'

MARCUS BENJAMIN

QUOTATIONS

THE FEDERAL BUDGET

THE estimates of the money needed by the federal government for 1924 are about \$3,000,000,000, excluding the Post Office, which it is hoped will be self-supporting. At a very moderate estimate, over two thirds of this will be spent on wars past, present or future. Nearly half a billion goes to the veterans, about a billion goes into the service of the debt accumulated in the last war, well over half a billion to maintaining the army and navy.

Half of the total expenditure is a debt to veterans and to bondholders. It is fixed. The other half of the expenditure is for the army,

the navy and the civil government. Here alone retrenchment is possible. Assuming that the administration sees no way to reduce the cost of the army and navy, but on the contrary, according to Secretaries Denby and Weeks, would like to increase these costs if possible, the taxpayer's position comes to this: If the whole civil government were dismantled or run free of charge the tax-saving would be less than 30 cents on a dollar.

Some part of this 30 cents is all that Mr. Harding has any hope of saving. The part which he is now thinking about is the part which goes into "research, improvement and development." Less than \$11,000,000 goes to research. If it were all abolished it would save just a trifle over one third of a cent on each dollar. Ten millions goes to education. Abolish this item and you have cut your budget .003 per cent. Sixteen millions goes for public health. Cease this activity and you save half a cent on a dollar. Abolish all public works, river and harbor improvements, road construction, the Reclamation Service, Alaskan railroad expenditures, hospital construction and other public improvements and the total saving would be less than 5 cents on a dollar. Abolish everything in the way of "research, improvement and development" and the taxpayer would not save 7 cents on a dollar.

The budget figures are the greatest indictment of modern civilization. They show that two thirds of the energy of government goes to the business of fighting, and that less than a third of the remaining third goes to the civilized business of research, improvement and development.—*The New York World*.

THE APPRECIATION OF SCIENCE

AT the anniversary dinner of the Royal Society it is customary to include among the guests some public men of distinction in other fields than those with which scientific men are concerned. Among such guests this year, at the dinner held on November 30, were Mr. Justice Darling, who proposed the toast of "The Royal Society," and Mr. L. S. Amery, first lord of the Admiralty, who responded to the toast of "The guests." If the assembly had consisted of leading representatives of literature or

art, music or the drama, neither of these speakers would have professed, facetiously or otherwise, want of knowledge of the functions of the institution they honored by their presence, or of the meaning of subjects surveyed by it. Mr. Justice Darling, for example, said he had heard of the Royal Society as he had heard of the equator, and had been told that the society "concerned itself with medicine and biology, and particularly natural knowledge and natural philosophy, but the moment the knowledge became unnatural—and so far as he could see most of it was—then the society had nothing more to do with it." Of course, the society was founded for the promotion of *natural* knowledge by inquiry as against *supernatural* by revelation or authority. Mr. Justice Darling should understand the distinction, for he referred to Francis Bacon several times in the course of his remarks, though always incorrectly, as "Lord" Bacon. As Sir Charles Sherrington, who presided, said, "The field of truth which the society explores is in the realm of natural knowledge, and the manner of the exploration of this field is in research." Sir Ernest Rutherford was right when, in responding to the toast of "The Medallists," he referred to the spirit of adventure possessed by every scientific pioneer. In no other department of intellectual activity is this spirit more manifest, and in none are such fertile provinces being opened. To us it seems strange, therefore, that so little is commonly understood of the origin and purpose of such a body as the Royal Society, now in its two hundred and sixtieth year, or of the achievements of modern science represented by it.—*Nature*.

SCIENTIFIC BOOKS

United States Life Tables 1890, 1901, 1910, and 1901-1910. Explanatory Text, Mathematical Theory, Computations, Graphs, and Original Statistics. Also Tables of United States Life Annuities, Life Tables of Foreign Countries, Mortality Tables of Insurance Companies. Prepared by JAMES W. GLOVER. Bureau of the Census 1921, pp. 1-496. 4to.

Since their appearance some years ago Glover's

earlier United States Life Tables have been a standard reference work on mortality in this country. With characteristic thoroughness, the author has extended and improved his earlier work, and has produced what may well be regarded as, at the moment at least, *the* standard actuarial reference work. For it can be said that in this present volume so much of actuarial science as concerns itself with the construction of mortality tables is covered with meticulous attention to detail. Nothing is left to the imagination of the reader and little to his intelligence. Every point in regard to the construction and the interpretation of life tables which could possibly arise to puzzle a voyager into these placid, because carefully "smoothed" seas, is explained thoroughly, comprehensively, and completely, with copious illustrations domestic and foreign in origin.

This is as it should be. Life tables have had the quite undeserved reputation of being mysterious documents, capable of being understood only by the highest order of intellects. As a matter of fact they are, of course, nothing of the sort, but only a quite obvious and simple set of derivative functions from age specific death rates. Such an exposition of actuarial arts and science as Glover gives in this volume will most effectually remove from the mind of the careful reader any lurking notion that there is an element of the occult or transcendental in life tables, and will impress him with the simple virtues of these documents. He must, however, be a careful, by which is meant painstaking, reader, because no light or fantastic touches will cheer his way through the solid, substantial mass of lucent but lucubratory details.

To turn to technical matters, it may be said that in the construction of the United States tables (based upon Registration Area data variously subdivided demographically for three different periods) Glover has followed the most highly approved, orthodox actuarial methods. The q_x values were smoothed between ages 5 and 85 by osculatory interpolation using fifth differences. The first 5 years of life were dealt with by a special method based upon German official procedure, and this section was welded